

**What is Claimed is:**

1. A game ball having a cover, said cover comprising an external layer of vulcanized urethane gum rubber.
- 5 2. The game ball as claimed in claim 1, wherein said urethane gum rubber comprises a urethane gum rubber resin obtained from the poly-addition of an isocyanate and a polyether; and said urethane gum rubber resin is vulcanized through a sulfur-based cross-linking reaction.
- 10 3. The game ball as claimed in claim 1, wherein said urethane gum rubber comprises a urethane gum rubber resin obtained from the poly-addition of a diphenylmethane diisocyanate and a C<sub>4</sub> polyether; and said urethane gum rubber resin is vulcanized through a sulfur-based cross-linking reaction.
- 15 4. The game ball as claimed in claim 2 wherein said cover further comprises a vulcanization agent selected from the group consisting of sulfur, mercaptobenzothiazole, dibenzothiazyl disulphide, zinc chloride complex of dibenzothiazyl disulphide and mixtures thereof.
- 20 5. The game ball of claim 4 wherein said cover has a composition comprising 50 - 100 parts of said urethane rubber resin and 2.5 to 12.0 parts of said vulcanization agent expressed parts by weight based on 100 parts urethane.
6. The game ball as claimed in claim 5, wherein said composition further comprises 5 - 50 parts of a reinforcing filler.

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7. The game ball of claim 1 wherein said cover comprises an inner layer overlayed by said vulcanized urethane gum rubber layer.
8. The game ball of claim 2 wherein said inner layer is comprised of cured natural rubber.
- 5 9. The game ball of claim 8 wherein said inner layer is foamed and has a density within the range of 0.5 to 0.95 g/cm<sup>3</sup>.
- 10 10. The game ball of claim 1 wherein said cover external layer has a Shore A durometer hardness within the range of 45 to 85.
11. A game ball, comprising:  
 10 an inflatable bladder;  
 a layer of polymer filaments wound over said bladder; and  
 a cover molded over said layer of filaments, said cover comprising a vulcanized urethane gum rubber layer, wherein said urethane gum rubber comprises a urethane gum rubber resin obtained  
 15 from the poly-addition of an isocyanate and a polyether; and said urethane gum rubber resin is vulcanized through a sulfur-based cross-linking reaction.
12. The game ball of claim 11 wherein said cover consists essentially of said urethane gum rubber layer.
- 20 13. The game ball of claim 11, wherein said cover further comprises a vulcanized natural rubber layer, said natural rubber layer positioned between said layer of filaments and said vulcanized urethane gum rubber layer.

14. The game ball of claim 13 wherein said cover consists essentially of said urethane gum rubber layer overlying said natural rubber layer.

15. The game ball of claim 13 wherein said inner layer of said cover is foamed to attain a density of 0.5 - 0.95 g/cm<sup>3</sup>.

5 16. The game ball of claim 13 wherein said inner layer has a thickness in the range of 0.01 - 1.6 mm and said urethane gum rubber layer has a thickness in the range of 0.3 - 1.9 mm.

17. A method for making a game ball, comprising:  
providing a core;

10 providing urethane gum rubber resin obtained from the poly-addition of an isocyanate and a polyether;

mixing a vulcanizing agent with said urethane gum rubber resin to create a urethane gum rubber;

molding said urethane gum rubber over said core; and

15 vulcanizing said urethane gum rubber through a sulfur-based cross-linking reaction.

18. The method of claim 17, wherein said urethane gum rubber resin is obtained from the poly-addition of a diphenylmethane diisocyanate and a C<sub>4</sub> polyether.

20 19. The method of claim 17 wherein said vulcanization agent is selected from the group consisting of sulfur, mercaptobenzothiazole, dibenzothiazyl disulphide, zinc chloride complex of dibenzothiazyl disulphide and mixtures thereof.

20. The method of claim 17 further comprising the step of molding a rubber inner layer over said core and wherein the step of molding said urethane gum rubber over said core comprises molding said urethane gum rubber over said rubber inner layer.

5 21. The method of claim 20 wherein said step of molding a rubber inner layer over said core comprises foaming said inner layer to a density within the range of 0.5 - 0.95 g/cm<sup>3</sup>.

22. A basketball comprising:  
 an inflatable bladder;  
 10 a layer of polymer filaments overlying said bladder; and  
 a multi-layered cover overlying said layer of filaments, said cover comprising a vulcanized natural rubber inner layer with a density of at least 0.8 g/cm<sup>3</sup> overlying said layer of filaments and a vulcanized urethane rubber exterior layer with a density of at least 0.8 g/cm<sup>3</sup>  
 15 overlying said inner layer, said exterior layer having a higher durometer hardness and greater abrasion resistance than said inner layer.